

3822

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Part of ORR

(IP-353A)

ANTI-FRICTION BEARINGS

IN USE IN SOME SOVIET EQUIPMENT

Central Intelligence Agency
Office of Research and Reports

CIA HISTORICAL REVIEW PROGRAM
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INTRODUCTION

Purpose

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The purpose of this report is to make available a list of the types and sizes of the antifriction bearings used in certain Soviet equipment and to equate the Soviet types and sizes into western standard types and sizes such as SKF, Fafnir, RIV, etc. The criteria of selecting the Soviet equipment is whether or not the equipment has military value or can support a war economy.

Source of Material

Ideally, the list should encompass all the weapons, vehicles, machine tools that use anti-friction bearings and are in accordance with the above criteria, but it is necessarily limited at this time by the availability of information. The present list is derived from translations of open Soviet literature and from actual physical examination of a few sample pieces of equipment. Where possible each bearing has been checked in Soviet anti-friction bearing catalogue.

An extension of this list will have to rely upon further examination of some pieces of equipment now in our hands, and by selecting U.S. and other western equipment similar to known pieces of Soviet equipment and deriving the types and sizes of strategic anti-friction bearings by inference. Steps have already been taken to derive in this manner the bearings in Soviet artillery pieces.

Explanation of Tables

Each table is headed by the name and model of the piece of equipment and a short description.

In the original data the description of the bearing was frequently inadequate and it has been supplemented from the Soviet catalogue.

The Soviet bearing number was stamped on each bearing in those cases where the equipment was physically examined. In each case it is in accordance with the new Soviet numbering system which was established in 1950.

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The SKF number is used where possible because the SKF company catalogues the greatest assortment of bearings among the western manufacturers.

Safetors.

Dimensions are in millimeters unless otherwise noted.

Quantities listed, where known, are per piece of equipment.

Where information is lacking, or where it was not possible to find the western equivalent of a Soviet bearing, the space has been left blank.

Coordination

Mr. H. E. Gillespie, Chief, and Mr. L. J. Rusoff of the Bearings and Oil Seal Branch of Battships converted the Soviet bearings to SKF numbers; and the Industrial Division, CIR, provided the material on the machine tools.

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TABLE I
SOVIET TANK

? M/85 tank manufactured in 1985

TYPE OF BEARING

BOLTER

S/N.

S/N. NO.

IN KILOMETERS

DIMENSIONS

ROD

O.D.

WIDTH

QUALITY

BALL THRUST

302

51120

Gearshaft thrust

100

135

25

1

BALL

303

6303

Oil pump drive idler

17

47

44

1

BALL

307

1207

Main access drive

35

72

17

1

BALL

307

1207

Start, lever end

Main clutch

110

174

30

1

BALL

300

51101

Main clutch

Steering clutch

110

174

30

2

BALL

305

6205

Fuel injector pump

crankshaft

25

52

15

2

BALL

303

6303

Water pump

Generator,drive end

17

47

34

1

BALL

305

6305

Generator,commut end

Starter,commut end

25

62

17

1

BALL

205

6205

Starter,commut end

Generator,drive end

25

52

15

1

BALL

1209

30218

Double ball, self align

Starter,drive end

1209

52

15

1

BALL

7218

30218

Transmision pinion

Transmision pinion

100

170

26

1

BALL

12-820

51121

Tranmission pinion

Tranmission pinion

100

170

55

1

U.S., manufactured

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SOVIET TIME (CONTINUED)

NAME OF BEARING	SOVIET NO.	STP NO.	BEARING APPLICATION IN EQUIPMENT	DIMENSIONS	ROUTE O.D. WIDTH	QUANTITY	REMARKS
Roller	2317	M-317	Transmision pinion	85 x 100	44	1	
Roller	7216	550/592 D	Transm-drive cross shaft	80 x 76	84	1	
Roller	7216	"	Transm.drive cross shaft	80 x 76	84	1	
Roller	2218	N-218	Transm.drive cross shaft	80 x 100	44	1	
Roller	92412	"	Transm.drive cross shaft	90 x 160	30	2	
Roller	567	"	Transm.drive cross shaft	60 x 150	35	2	
Roller	3522	22222	Transm.+reverse idler gear	52 x 200	70	2	
Roller	35511	35511/955905	Final drive	110 x 120	53	2	
Roller	7230	30230	Final drive	130 x 230	48	2	
Roller	804915	"	Final drive, final	130 x 270	50	2	
Roller	3117	6317	Track idler	86 x 106	57	2	
Roller	2220	"	Track idler, lower	86 x 100	40	2	
Roller	316	6316	Boogie wheel	100 x 100	34	2	
Roller	201	6201	Turner, floating, rear	122 x 100	39	2	
Roller	203	6203	Turner, floating, rear	122 x 100	39	1	

U.S. manufactured

5.120 x 9.051 x 1.9375
S.S. manufactured

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TABLE I
SOVIET PARK (CONTINUED)

TYPE OF BEARING	SOVIET		BEARING APPLICATION IN EQUIPMENT	DIMENSIONS		QUANTITY	REMARKS
	NO.	SHP NO.		BORE G.I. WIDTH	1"		
Ball	305	6305	Turret rotat. mecha. Worm shaft, drive end	25	62	1;	1
Ball	304	6304	Turret rotat. mecha. Worm shaft, pilot end	20	52	15	2
Ball	304	6304	Turret rotat. mecha. Spur gear shaft	20	52	15	1
Ball	203	6203	Ventilating fan, drive end	12	32	10	1
Ball races	605	6205	Vent. fan, comm. end	15	35	8	1
Ball in gear case			Tachometer brgs.			5	
Ball in gear case			Governor thrust arm			1	
Ball bearing			Pest pump tappet assy's.			12	
Ball bearing			Governor			1	
Ball bearing			Turret ring			1	
Ball bearing			Commander's hatch			1	
Separate balls			Clutch release mech.			9	

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TABLE VI

XLG AIRCRAFT MODE

MCG 15

ITEM OR PART	SOVIET NO.	SIP NO.	BEARING APPLICATION		DIMENSIONS*	QUANTITY	REMARKS		
			IN EQUIPMENT	FOR 0.5. WIDE					
BALL, caged					6005				
BALL, " "					6206				
BALL, caged			Accessory case	0.99	1.19	1.25	1.724	2	9105 X PAIR PK
BALL, "									206
BALL, caged									8 12 X
BALL, caged, no cavir race			MS 24	Main bearings	1.37	2.044	.551	5	6107 NORMA HOPFLIN
BALL, caged, no cavir race			CR 16		5 3/4	1 1/16	1	LS 19	
					4 3/4	1 3/16	1	ELS 15	
					3 1/4			ELS 34	

(Continued)

TABLE III

B-80 TRACTOR (CATERPILLAR)

*Most powerful Soviet tractor - 80 horsepower
Copy of U.S. Caterpillar Co.'s D7 Tractor.*

TYPE OF BEARING	SOVIET NO. & P. NO.	BEARING APPLICATION IN EQUIPMENT				QUANTITY	
		DIA.	OD.	WIDE			
Ball	203	6003	Gov. or diesel engine	17	40	12	1
Ball	208	6008	Start motor clutch sleeve shaft and reducing gear	40	80	18	2
Roller, cyl. spiral, rel. lars single split cut ring	210	6200	Start motor crankshaft	20	34	25	1
Ball	211	6211	Start motor crankshaft	50	90	20	1
Roller, spiral rings, no inner ring	3592b	6212	Start motor crankshaft	55	100	21	1
Roller, tapered	7312	3032	Main friction clutch	68	100	24	1
Ball	215	6215	Side friction clutch	60	120	24	2
Ball	213	6213	Transm. up shaft and crankshaft	75	130	25	2
Roller, graphitised steel bearing grooved for lock ring pressed cage.	RYLO Spec	Transm. up shaft and crankshaft	50	110	27	2	
Roller, graphitised steel bearing two flanges on cut ring, no outer ring, pressed cage.	Transm., inner gear shaft lo	70	17	2			

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TABLE III (continued)

880 TRACTOR (CATERPILLAR)

Most powerful Soviet tractor - 80 horsepower. Copy of U.S. Caterpillar Col's D7 tractor.

ITEM NO.	QUANTITY	DESCRIPTION	BORE	DIMENSIONS
			O.D.	WIDTH
Baller, bearing for lock ring, housing cage	1	bearings	115	75
Ball	1	Trunn.	160	37
Ball	20	Trunn., lower shaft	110	27
Ball	205	Trunn., crankshaft & lower shaft	50	2
Baller, two flanges on in. ring, solid brass cage	1	Piston pin	62	16
Baller, as above	1	Gear	60	6
Baller, as above	1	bear	130	11
Baller, tapered, lock flange on out ring	1772	bear	130	6
Baller, tapered, not std.	1772	Side reduc. gear	70	35
Ball, thrust	803	Side reduc. gear	110	2
Beardle, one piece	5103	Side reduc. gear	230	58
Beardle, one piece	5102	Start motor gear	115	190
Ball, thrust	2	Start motor gear	17	9
Beardle, one piece	1	Dieisel gear	15	20
Ball, thrust	1	Dieisel gear	15	12
	800205	Rev 80005.	25	48
		Diessel gear	15.5	1

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BY SA TRACTOR

For diesel caterpillar general purpose tractor based
upon harvester schitz-usti tractor design. 24 hours per day.

ITEM OR PART	STOCK NO.	SET NO.	DESCRIPTION	NUMBER	DIMENSIONS	NO. O.D.	WIDTH	SPACER
Bell, gear	205	603	Pinion shaft gear, side of tandem pulley, water pump, drive shaft of reducting of starting engine	35	52	15		
Bell, gear sleeve	60003	603	Crankshaft sleeve of tandem pulley of water pump and ventilator	30	62	26		
Bell, gear	206	607	Water pump shaft	20	72	19		
Bell, crank, rollers	5007	6009	Ventilator pulley	35	80	21		
Bell	602	600	Main coupling shaft, and reverse shaft, and power take-off	40	110	27		
Bell, number control	50013	-	Main coupling clutch	63	102	27		
Bell, hub flange on inner ring	204	6003	Crankshaft of start engine	20	47	14		
Bell	203	6002	Seal-ring of crankshaft of start engine	15	35	11		
Bell, gearbox	1305	1305	Gearbox	25	62	17		
Bell	203	6203	Shaft of Beadix of reducer or starting engine	40	80	18		
Bell	209	6209	Reducer of start engine	45	85	19		

EQUIVALENT TO M-13672-2
REPLACES M-13672-1

TABLE IV (CONTINUATION)

DTS-TRACTOR

New class caterpillar road purpose tractor based upon American SIFT-NCI tractor design. Shown opposite

TYPE OF BEARING	SOVIET NO.	SUS. NO.	BEARING APPLICATION IN		DIMENSIONS INCHES O.D.	WIDTH INCHES	QUALITY	REMARKS
			BALL	ROLLER				
ROLLER, tapered	7001	1201		Reducer or start motor	70	47	11	
ROLLER, tapered	503	2223		Supporting roller	10	38.5		
ROLLER, tapered	509	3229		Steer wheel hub	20	33		
BALL	607	6407		Supporting roller	15	10	38.5	
BALL	6308	6308		Oil-lubricated shaft bearing	35	100	25	
BALL, groove con-lock-type	50408	620408		Outer ring of pinion shaft, LPP	80	23		
BALL, groove con-lock-type	50409	620409		Outer ring of pinion shaft, LPP	100	27		
BALL, cylindrical	2702			Outer race shaft and pinion hub off	120	23		
BALL, cylindrical, wash cage	2703			Cylindrical race cage	120	21		
BALL, spherical	460	210	CYL. CHT.		10	60		
BALL, angular contact, non-	22216	7216			10	60		
Roller, tapered	7312	31312	oil reservoir		20	26.5		
Roller, cylindrical	92012	NUT 3	oil reservoir		10	21		
Roller, tapered, brass cage	7318				150	35		
RIV. O.					150	35		
SP. 74. 5					150	35		

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TABLE ✓
S-65 AND S-65 TRACTORS (CATERPILLAR)

No longer produced. Were prime movers used in World War II.
Still in use and requiring spare parts. 68-70 H.P. drawbar
horsepower. S-65 used Lignin fuel and S-65 is diesel powered.

TYPE OF PARTING	SOVIET NO.	SKF NO.	NO. OF APPLICATN	DIMENSIONS			REMARKS
				FORGE O.D.	WIDTH	DEPTH	
Ball, cone	8206	51206	4	30	53	16	
Ball, tapered, special, pro-	958726		1	120	235	42	
Ball, tapered, standard							60 only
Ball, tapered, angular contact, 1. Plane outer ring, 2 inner rings	86723						
Ball, tapered	7616	32316	Upper shaft, front	65	40	58.74	
Ball, tapered, not std.	7712	03'06/3263	Lower shaft, rear	80	170	62	
Roller, tapered, not std.	7721	REV	Same, front	60	120	65	
Roller, tapered, not std.	7718	Thrust gear	Shaft of bearing gear	65	215	78	
Roller, tapered, not std.	7618	US/14/3263	Outer shaft, rear	80	160	50	
Roller, spiral rollers	5306	REV	Outer shaft, front	80	170	62	
Roller, spiral rollers, inner ring w/ increased height	985713	2076, b-a-1	Ventilator	30	72	30	
Roller, spiral rollers, w/ single slit outer ring	1651	5306	Upper shaft, rear	65	40	47.55	
Low. rolling track	55	1000					
CAMINENTAL							

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TABLE ✓
(Continued)

S-60 AND S-65 TRACTORS (CATERPILLAR)

No longer produced. Were prime movers used in World War II.
Still in use and requiring spare parts. 18-50 H.P. drawbar
horsepower. S-60 used Lincoln fuel and S-65 is diesel powered.

SOVIT NO.	SKT NO.	BRKTIC APPLICATION	IN EQUIPMENT	DIMENSIONS	REMARKS
	45213	Rightening wheel	7	65 120 100	
202	6202	Generator	25	35 11	
203	6203	Diesel gov.	17	40 12	
204	6204	Generator	20	47 14	C-65 only
205	6205	Clutch coupling and shaft of starter	10	80 18	
206		Clutch coupling	19.625	24 25	C-65 only
207	6207	Crankshaft or starter	50	90 20	C-65 only
211	6211	Crankshaft of starter	55	100 21	C-65 only

Some items added from Sov. catalogues.

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52 Horsticker kerosene caterpillar. Prototype
of new Soviet D-54 truck tractor.

TYPE OF BEARING	SOVIET ID.	SKF ID.	DIMENSIONS		QUANTITY	PIECES
			DIA. IN. & MIL.	THICKNESS IN. & MIL.		
Ball	309	6309	Driver, front	.100 .25	100	25
Ball	407	6407	Driver, rear	.100 .25	100	25
Ball	411	6411	Driver	.114 .33	114	33
Ball, thrust	8109	52109	Starting crank (size M)	.65 .14	65	14
Ball, bearing contact	6025	8-15	Armature rotor, front	.95 .08	95	8
Ball, bearing contact	6017	L-17	Armature rotor, rear	.40 .10	40	10
Ball	203	6203	Generator	.40 .12	40	12

Note: Actual data did not contain dimensions; added from Sov. catalogue.

SCHNEIDER

TABLE VI
(Continued)

SCHNEIDER TRUCK IN

52 Horsepower kerosene desulfurizer prototype
of new Soviet M-54 diesel tractor

ITEM OR PART NO.	SERIAL NO.	SET NO.	BEARING APPLICATION	DIMENSIONS	NOTES
Ball, groove, lock ring	5012	6124R	Small final drive gear, universal	60 150	35
Ball, groove, lock ring on outer ring	5012	5164	Oil pump shaft	20 35	20
Ball, sleeve	7909	22309	Support bearing	45 100	38.5
Roller, tapered	307	6307	Support	35 80	21
Ball,	32213		Steering wheel, inner	65 120	33
Roller, tapered	7609	32309	Steering wheel, outer	45 200	38.5
Roller, tapered	1205	1205	Power take-off	25 52	25
Ball, double, spherical	1308	1308	Power take-off, rear	40 90	23
Ball, double	916913		Main coupling, middle	62 102	27
Ball, angular contact, high flange on outer ring	205	6205	Governor gear	25 52	15
Ball, angular contact, high flange on outer ring	6012	E-12	Governor shaft, rear	12 32	7
Ball, angular contact	208	6208	Ventil fan & water pump	40 80	18
Ball	305	6305	Water oil separator pulley	25 62	17
Ball	308	6308	Ventil and water pump	40 90	23

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TABLE VI

3 ton 2 axle truck, not produced in 1956

113 \$

ITEM & PART	PART NO.	RATING APPLICATION II		
		SOURCE	NOTE	OD. MM.
Ball bearing, in housing	50211	Clutch coupling	5	90 23
Ball				
Baller, tapered, 20x35 mm dia. 20 mm wide	50212	Bush coupling	5	52 25
Baller, tapered		Bearing end ring pin	8	50 27
Baller, tapered	502	Drive gear or rubber, rear bridge	10	110 27
Baller, tapered	503	Drive	10	125 28
Baller, tapered	504	Ventilator	3	47 25.5
Baller, tapered	505	Gear box	45	80 20
Baller, tapered, 20x35 mm dia. 20 mm wide	505	Brake or rear bridge	5	100 20.5
Baller, tapered, 20x35 mm dia. 20 mm wide	506	Rear wheel	70	120 45
Baller, tapered, 20x35 mm dia. 20 mm wide	507	Front wheel, outer	30	72 28
Baller, thrust, 20x35 mm dia. 20 mm wide	508	Front wheel, inner	45	80 35
Baller, oil, w/o rings	65706	Worm of steer col.	40.5	60.3 35
Baller		Main shaft transmission	10	62 16.1
	308	Intermediate shaft of transm.	10	90 23

LITERATURE
CONTINUED

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3 ton 2 axle truck. First produced in 1936

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TABLE VIII

ZIS 150 TRUCK

Std. 3 ton truck, equivalent to ZIS 150 but heavier.
Currently involved in development to increase payload.

TYPE OF BEARING	SOURCE NO.	REF. NO.	BEARING APPLICATION IN	EQUIPMENT	BORE	O.D.	WIDTH	QUANTITY	RESULTS
Ball, 6000	6000S	6000S	Fr. Transm. primary shaft	25	32	15	?	?	
Ball, 6000 size for 10000	6000S	6000S	Transm. primary shaft	65	120	23			
Ball, 6000, short	62-1237	6207/2	Fr. transm. o'shaft	35	80	21			
Ball, 6000 size for long shaft	6207-2		Fr. transm. o'shaft	35	100	25			
Ball, long radius	6000		Transm. Main shaft pilot bearing, and reverse gear	30	42	44.1			
Ball, 6000 size for long radius	6207/2		Transm. Main shaft rear	55	120	29			
Ball, angular con. in bearing, curved outer ring	6000S		Clutch release	55	90	23			
Ball, 6000 size for 6000S	6000S		Uni. v. joint	25.15	39	2.8			
Ball, tapered, outer dia.	6200-A	6200-A	Diffr. axle drive lever pin, Diffr. axle drive lever and spur gear	110	140	42.5			
Ball, tapered, outer dia.	6200-A	6200-A	Diffr. axle drive lever pin, rear	65	110	51.5			

TABLE VII - CONTINUED

SIX 150 TONS

Stal. J ten truck, equivalent to KTB 21 bit hauler.
Currently involved in development to increase payload.

TYPE OF BEARING	SIZE IN. IN.	SIZE IN. IN.	NUMBER PART	BEARING APPLICATION IN		DIMENSIONS INCHES DIA. O.D. WIDTH	QUANTITY
				EQUIPMENT	ROD		
Roller, tapered roller	745	2025/27	745			75 130	27.5
Roller, tapered roller	745	2025/27	745			75 130	27.5
Roller, tapered roller	763	2026	763			75 135	44.5
Roller, tapered	741	2021	741			65 90	35.5
Roller, tapered no inner ring	97209		97209			55 120	46
Ball, angular no cage	81606		81606			46.673 72	14
Needles							
Ball, up groove for lock ring	50207	6007-28	50207			28 42	26
Ball, up groove for lock ring	50207	6007-28	50207			28 42	26
Compressor air shaft	35	72	35			35 72	17
Ball	207	6207	207			25 72	17
Ball, felt seal on one side	20303	55 8603	20303			25 72	17
Ball, felt ring on one side	20703	55 8503	20703			25 47	15.5
						Water pump shaft, fr.	
						17	
						40	
						14	

Balloons 16 x 3 1/2

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TABLE 15
ZIS 151 TRUCK

Military version of ZIS 150 3 ton truck. Has 3 axle drive. Resembles US Army 2½ ton G.M.C. or Studebaker

ITEM OF SERVICE	SOURCE ID.	SD. NO.	BEARING APPLICATION IN EQUIPMENT	BORE	DIMENSIONS	O.D.	WIDTH	QUANTITY	REMARKS
Ball, taper, w/o exp large side, com	27029		Transfer Case	45	100	32	3		
Ball, taper	75007		Transfer Case	60	80	33.3	5		
Baller, taper	74049	30308	Transfer Case	60	90	25.5	2		
Ball & sleeve bearing	50111	64111R	Transmission	55	120	28	1		
Ball	50113	62134R	Transmission	65	120	23	1		
Ball	50107	64074R	Transmission	35	100	25	1		
Baller w/o exp 51207 R. R. ball cage	7307	30307/R	Transm. Main Shaft B.R.	35	80	21	1		
Baller		50105?	Maltese Cross & Idler	30	111.3	43.7	3		
Ball? Baller?	204705		Clutch Release	697	54?	1			
Ball			Unit, Joint	24.6	44.5	19.8	10		
Ball, salt coal com side	20803?	N.D. 8603	Water Pump Impeller Shaft	17	28.6	17	1		
Ball,			Water Pump Impeller Shaft	17	47	17	1		
			Impeller shaft	17	40	14	1		
			Impeller shaft	17	40	14	1		

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TABLE I X
CONTINUED

251 ELLIOTT

Military version of 213 150 3 ton truck. Has 3 side doors. Ensemble US Army 23 ton 6x6 (GSC or Standard bear).

TABLE X

JAZ 51

Std. 3 ton truck - 4 wheel, single
drive, first produced in 1946

TYPE OF BEARING	SOVIET NO.	SIP NO.	BEARING APPLICATION		BORE G.D.	DIMENSIONS	WIDTH	QUANTITY	REMARKS
			In EQUIPMENT	Transmision,main					
Ball, one shield	6003	6003 Z	drive gear,guide end	17	40	12	1		
Ball	209	6209	Trans.main drive gear	45	45	19	2		
Roller, long rollers, w/o rings	84904	RIV 9394a	Trans-main shaft pilot	20.612	33.325	36.7	1		
Ball	307	6307	Trans. main shaft brg	35	80	21	1		
Roller long rollers, w/o rings	64904		Trans.c'shaft gear brg	25.40	41.288	60.4	2		
Ball thrust,in bearing, cup abutted outer	78891	RIV 4526	Clutch release sleeve brg	52.387	86.55	20.74	2		
Needle, ring, no inner ring	84704		Unit joint,needle brg assm'd	22	35	20.5	12		
Ball, large angle cone, not std.	208	6208	C'shaft support brg	40	80	18	1		
Roller, tapered, no inner ring, not std.	27709		R. axle drive pinion brg	45	100	29	2		
Roller, cylin, short rollers	922906	RIV 5407a	R. axle drive pinion rear	31.766	62.024	26.975	7		
Roller, tapered	7113	3984/3920a	Differ case brg	65	110	30	2		
Roller, tapered	7514	32214	inner wheel hub,inner	70	125	31	2		
						(2.6" x 4.4" x .6)	2.625		Possibly 3984/3920 x L. 14"

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TABLE X (CONTINUED)

JUL 51

TYPE OF BEARING

SOVIET
NO.

SKF NO.

BEARING APPLICATION
IN EQUIPMENT

NOTE C.I.

DIMENSIONS IN MM

WIDTH

QUANTITY

REMARKS

TYPE OF BEARING	SOVIET NO.	SKF NO.	BEARING APPLICATION IN EQUIPMENT	NOTE C.I.	DIMENSIONS IN MM	WIDTH	QUANTITY	REMARKS
Ball thrust,in housing	98206	RIV 5310B	Steer knuckle pivot brg	30.1 35(2)	53	16	2	
Baller, tapered	7608	32208	Fr. wheel hub, inner	40	90	33	2	
Baller, tapered, special	7605	32305	Fr. wheel hub, outer	25	62	24	2	
Ball bearing race rings	977908	Tinker 35 BC1	Steering worm(upper)	40.6	60.7	12	1	
Baller, tapered,center drive axle	987910	Timken 387	Steering worm(lower)	48	68	19.5	1	Should go with Timken #35 BC
Ball bearing,spur(gear) drive shaft,center	922205	Hyatt 13043	Steer gear shaft,end	25	52	15	2	
Ball bearing,spur	6704	Hyatt 93312	Steer gear shaft,upper	20	30	18 18.3(2)	1	
Ball bearing,tee scale	330078		Water pump shaft	.16	30(2)	40(2)	1	
Ball bearing,tee scale	807413		Spider pinion housing	70	120 110	45 30.5	2	
Needle brg	—		Needle brg of tension lever of clutch pressure disk	—	1.6	9	57	
Baller	—		Roller brg as above	—	5.5	9	3	
Ball thrust in housing	688911	RIV 5723	Clutch release sleeve brg	52.38	84.5	20.7	1	
Ball, double,outer ring, cylindrical,contract,spec.	71601		End of axle drive pinion	25	62	24	1	
	202		Steer gear shaft	12.75 15	47.6 21	24	1	
	6202		Steer gear bearing shell	—	—	—	1	CONFIDENTIAL

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TABLE X1

GAZ 63 TRUCK

Military version of GAZ 51, 2½ ton truck.
Has a 2-axle drive, higher ground clearance.

TYPE OF BEARING	SOVIET NO.	SKF NO.	BEARING APPLICATION IN EQUIPMENT	DIMENSIONS HOLE O.D.	WIDE	QUANTITY	REMARKS
Roller	22207	—	Steering col., sector col.	26	51	1	
Roller thrust	987970?	—	Bottom brg., steering col.	48	68	1	
Roller thrust	977667?	—	Upper trz., steering col.	48	66	1	
Needles w/o rings	6474	—	Lower sector col.	20	30	18	
Ball	3300767	—	Srg. bushing w/pipe (water pump)	16	27	17	
Ball	50309	6369-AB	Main shaft drive gear brg.	45	100	25	1
Ball	307	6307	Idler shaft brg.	35	80	21	1
Ball	208	6208	Idler shaft brg.	40	80	18	1
Roller, tapered	7307	30307	Input & output shaft brgs.	35	60	23	4 sets
Needles w/o rings	86904	KIV 939A	Front main shaft brg.	20.612	33.325	36.7	1
Needles " "	64864	KIV 9395	Cluster gear shaft brg.	19.1	28.6	43	2
Ball	208	6208	Front transmission brg.	40	80	18	1
Ball	307	6307	Rear transmission brg.	35	80	21	1
Needle, w/o inner ring, cup shaped outer ring	84764	—	Univ. Joint brg.	22	35	20.5	16
Ball, single thrust	788911	KIV 5723	Clutch release throw out brg.	52.4	84.6	20.7	

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TABLE X (CONTINUED)

GAZ 63 TRUCK

TYPE OF BEARING	SOVIET NO.	SKF NO.	BEARING APPLICATION IN EQUIVALENT	DIMENSIONS		WHT	QUALITY	REMARKS
				BORE	O.D.			
Ball	807813	-	Dif. carrier brg.	65	Cup			
Ball, approx. large	27709	-	Pinion shaft brg.	45	109.5			
Ball, approx. very large	27710	-	Pinion shaft end brg.	25	62	32		
Ball, approx. very large	27706	Brett U 5305 RS	Pinion shaft end brg	25	62	24	1	
TSU RV M/02/744			Bear wheel inner brg	70	135	33.5	2 sets	
BRASS			Bear wheel outer brg.	65	Cup 109.5			
Universal Joint brgs.	27704		Universal joint brgs.	22	35	20.5		
BRASS			Front diff. carrier brgs.	65	Cup 109.5			
TSU RV M/02/744			Inside front wheel brg.	70	125	33.5	2 sets	
BRASS	27702	-	Outside front wheel brg.	65	Cup 109.5			
BRASS	27703		Upper diff. pinion brg	45	100	32	2 sets	
BRASS	27703	Haben M/9/513	Steer knuckle brg.	30	72	24.5		
BRASS	27703	Haben M/9/513	Steer knuckle brg.	35	62	24		
BRASS	27703	Haben M/9/513	Steer knuckle brg.	30	72	24.5		
BRASS	27703	Haben M/9/513	Steer knuckle brg.	35	62	24		

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Soviet army jeep, very similar to the one shown above.

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Table XII (Continued)

See 867

Soviet army jeep, very similar to US Jeep - wheel drive.

TYPE OF BEARING	SOVIET NO.	SKF NO.	BEARING APPLICATION	DESIGNATIONS	DIAMETER	QUANTITY	REMARKS
Plain, w/o inner ring. Plain, w/o outer ring.	922205		Hyatt 1304-TS	Front & back bridge	25	52	
Plain, w/o flange outer. Plain, w/o flange inner.	2207		N-207/R	Front bridge	35	15	
Plain, w/o flange outer. Plain, w/o flange inner.	971507		Timken 11-Ba	Steer gear	39	72	
Plain, w/o flange outer. Plain, w/o flange inner.	987908		Timken 11-C	Steer gear	33.8	58	
Plain, w/o flange outer. Plain, w/o flange inner.	801708				17		Cup
Plain, w/o flange outer. Plain, w/o flange inner.					Front universal joint	22	35
						20.5	Torr. style (?)

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TABLE XLI

YA-200 and MAZ 205

This OJ series consists of 5-, 7-, and 15-ton trucks with several variations of drive-axles. Only a few thousand of each produced.

TYPE OF BEARING	SOVIET NO.	SHP NO.	BEARING APPLICATION IN EQUIPMENT	DIMENSIONS IN MM.	REMARKS
Ball, one shield, single row Ball, groove for locking on outer ring	60205	6205-2	Trucks, box & ventilator	25 52 15	
Ball	50217	6217-AB	"	35 150 26	
Ball	50211	6211-AB	"	35 140 33	
Ball	50214	6214-AB	Drive shaft	55 100 21/27	
Ball	50201	6201-AB	Ventilator	20 52 15	
Ball	50201	6201	Regulator	12 37 12	
Ball	50200	6200	"	16 30 9	
Ball	50201	6201	Cylinder head?	12 32 10	
Ball	50205	6205	Supercharger? Fan?	25 52 15	
With groove for locking on outer ring	50209	6209-AB	Trans. box	45 120 29	
thrust, in housing	207	6207	Compressor	35 72 17	
grooved, non-shield, filling solid brass cage	70218	6218/MW/PS	Rear bridge	55 90 23	
	98671			90 160 30	

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TABLE XII

LAZ and MAZ 205 (CONTINUED)

TYPE OF BEARING	SOVIET NO.	SKF NO.	BEARING APPLICATION IN EQUIPMENT	BOX O.D.	DIMENSIONS O.D.	WIDTH	QUANTITY	REMARKS
Ball, thrust, in housing	108710	KIV 4458	Front bridge	50	80.5	22.0		
" spec. lt. series	8102	51102	Regulator	15	28	9		
" spec. w/cage-pc rings								
" double row thrust	56805?	3205	Supercharger? Fan?	25	52	20.6		
" double v/2 seals	330088		Later pump	16	30	40		
Roller, 2 flanges outer ring, no inner ring, solid brass cage	292208	WJ 3/8/H w/o inner	Transm box	90	23			
Roller, no rings	61907							
" conical non-std	7712	RIV 03/06/3263	Rear bridge	32	52.1	49		
" " "	807173			60	120	46		
" " "	7718	32313	" " " " "	65	150	54		
" " "	7613	32311	" " " " "	90	160	50		
" " "	7610	32310	" " " " "	65	140	51.5		
" " "	7307	30307	Steer. front?	50	110	42.5		
" " "	7306	30306	" " " " "	35	80	23		
Needle, w/one pressed outer ring	94701	41V 6225-1	Propeller	30	72	21		
" " "	94709		Steering wheel	12	17	12		
" cup outer ring, no inner ring	801907		" " " " "	45	55	36		

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LAZ 130 33.7

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TABLE XIV.

M. 72 MUSCICULE

Not further identified

Part No.	Soviet No.	Set No.	BEARING APPLICATION			Quantity	Remarks
			In Element	Bore O.D.	Width		
1880k							
207	6207		Trans rear main cup & shift brg	20	47	13.5	1
206	6206		Trans, front main shaft & countershaft brg	35	72	17	1
			Pilot brg shaft & plug	30	62	16	2
			Crankshaft	35	71.5	17.5	2
207	6207		Front pinion brg	20	51.5	22	1
201	6201		Flange brg	35	72	17	2
1881	EL-8		Rear generator brg	12	32-	10	2
1880			Front generator brg	8	22	7	2
204700			Univ. joint brg	10	19	9	4
17807			Steering column brg	34	51	12.1	2
204	6204		Wheel brgs	20	47	14	4

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TABLE XV

Model 1615, 12" En-154 Letter

Similar to U. S. M. 1901 Drive-shaft drive spindle lathe

TYPE OF BEARING	SOVIE NO.	SKF NO.	BEARING APPLICATION	DIMENSIONS B.I.D. J.I.D. WIDTH	QUANTITY	REMARKS
Ball	(6) dia?		headstock		1	
Ball	112-67		headstock		1	
Ball	204	6204/C 152	Headstock	20 47 14	1	
Ball	205	6205	Headstock	25 52 15	2	
Ball	6205	6205 2	Headstock	25 52 15	1	
Ball	11-6305	6305	headstock	25 62 17	2	
<u>Ball, Spindle</u>						
Ball, sleeve		6704 3/4"	RV 01/02/3157	Headstock	70 120 45	1
Ball		6204	Headstock	20 35 10	2	Could be replacement for flange flange not located
Ball	1204	1204	Feed rod	20 47 14	1	
Ball	1204	1204	Lead screw	20 47 14	1	
Ball	202	6202	Feed gear	15 35 11	2	
Ball, thrust	80017					
Ball	210	6210			50 90 20	1

Note: This is only a partial list because the sample machine is incomplete—possibly about 6 bearings are missing.

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TABLE XVI

MODEL 1A62 16" ENGINE LATHE

Similar to U.S. heavy duty Lodge and Shipley 16" lathe

ITEM	SOURCE NO.	SET NO.	IN EQUIPMENT	BARING APPLICATION			QUANTITY
				DEPTH	DIA. O.D.	WIDTH	
1	62020	?	Headstock	90	120	22	1
2	62021	?	Headstock	80	105	19	1
3	62022	?	Headstock	75	110	27	1
4	62023	?	Headstock	60	90	35.5	1
5	62024	?	Headstock	55	62	16.5	2
6	62025	?	Headstock	70	105	35.5	2
7	62026	?	Headstock	35	72	17	1
8	62027	?	Headstock	65	120	23	2
9	62028	?	Drive Pulley	—	—	—	1
10	62029	?	Roll Stock	—	—	—	1
11	62030	?	Gear Quadrant	25	32	15	1
12	62031	?	Gear Quadrant	25	35	11	2
13	62032	?	Gear Quadrant	35	40	21	2
14	62033	?	Gear Quadrant	35	40	21	2
15	62034	?	Gear Quadrant	35	42	17	1
16	62035	?	Gear Quadrant	35	42	17	1
17	62036	?	Gear Quadrant	35	42	17	1
18	62037	?	Gear Quadrant	35	42	17	1
19	62038	?	Gear Quadrant	35	42	17	1
20	62039	?	Gear Quadrant	35	42	17	1
21	62040	?	Gear Quadrant	35	42	17	1
22	62041	?	Gear Quadrant	35	42	17	1
23	62042	?	Gear Quadrant	35	42	17	1
24	62043	?	Gear Quadrant	35	42	17	1
25	62044	?	Gear Quadrant	35	42	17	1
26	62045	?	Gear Quadrant	35	42	17	1
27	62046	?	Gear Quadrant	35	42	17	1
28	62047	?	Gear Quadrant	35	42	17	1
29	62048	?	Gear Quadrant	35	42	17	1
30	62049	?	Gear Quadrant	35	42	17	1
31	62050	?	Gear Quadrant	35	42	17	1
32	62051	?	Gear Quadrant	35	42	17	1
33	62052	?	Gear Quadrant	35	42	17	1
34	62053	?	Gear Quadrant	35	42	17	1
35	62054	?	Gear Quadrant	35	42	17	1
36	62055	?	Gear Quadrant	35	42	17	1
37	62056	?	Gear Quadrant	35	42	17	1
38	62057	?	Gear Quadrant	35	42	17	1
39	62058	?	Gear Quadrant	35	42	17	1
40	62059	?	Gear Quadrant	35	42	17	1
41	62060	?	Gear Quadrant	35	42	17	1
42	62061	?	Gear Quadrant	35	42	17	1
43	62062	?	Gear Quadrant	35	42	17	1
44	62063	?	Gear Quadrant	35	42	17	1
45	62064	?	Gear Quadrant	35	42	17	1
46	62065	?	Gear Quadrant	35	42	17	1
47	62066	?	Gear Quadrant	35	42	17	1
48	62067	?	Gear Quadrant	35	42	17	1
49	62068	?	Gear Quadrant	35	42	17	1
50	62069	?	Gear Quadrant	35	42	17	1
51	62070	?	Gear Quadrant	35	42	17	1
52	62071	?	Gear Quadrant	35	42	17	1
53	62072	?	Gear Quadrant	35	42	17	1
54	62073	?	Gear Quadrant	35	42	17	1
55	62074	?	Gear Quadrant	35	42	17	1
56	62075	?	Gear Quadrant	35	42	17	1
57	62076	?	Gear Quadrant	35	42	17	1
58	62077	?	Gear Quadrant	35	42	17	1
59	62078	?	Gear Quadrant	35	42	17	1
60	62079	?	Gear Quadrant	35	42	17	1
61	62080	?	Gear Quadrant	35	42	17	1
62	62081	?	Gear Quadrant	35	42	17	1
63	62082	?	Gear Quadrant	35	42	17	1
64	62083	?	Gear Quadrant	35	42	17	1
65	62084	?	Gear Quadrant	35	42	17	1
66	62085	?	Gear Quadrant	35	42	17	1
67	62086	?	Gear Quadrant	35	42	17	1
68	62087	?	Gear Quadrant	35	42	17	1
69	62088	?	Gear Quadrant	35	42	17	1
70	62089	?	Gear Quadrant	35	42	17	1
71	62090	?	Gear Quadrant	35	42	17	1
72	62091	?	Gear Quadrant	35	42	17	1
73	62092	?	Gear Quadrant	35	42	17	1
74	62093	?	Gear Quadrant	35	42	17	1
75	62094	?	Gear Quadrant	35	42	17	1
76	62095	?	Gear Quadrant	35	42	17	1
77	62096	?	Gear Quadrant	35	42	17	1
78	62097	?	Gear Quadrant	35	42	17	1
79	62098	?	Gear Quadrant	35	42	17	1
80	62099	?	Gear Quadrant	35	42	17	1
81	62100	?	Gear Quadrant	35	42	17	1
82	62101	?	Gear Quadrant	35	42	17	1
83	62102	?	Gear Quadrant	35	42	17	1
84	62103	?	Gear Quadrant	35	42	17	1
85	62104	?	Gear Quadrant	35	42	17	1
86	62105	?	Gear Quadrant	35	42	17	1
87	62106	?	Gear Quadrant	35	42	17	1
88	62107	?	Gear Quadrant	35	42	17	1
89	62108	?	Gear Quadrant	35	42	17	1
90	62109	?	Gear Quadrant	35	42	17	1
91	62110	?	Gear Quadrant	35	42	17	1
92	62111	?	Gear Quadrant	35	42	17	1
93	62112	?	Gear Quadrant	35	42	17	1
94	62113	?	Gear Quadrant	35	42	17	1
95	62114	?	Gear Quadrant	35	42	17	1
96	62115	?	Gear Quadrant	35	42	17	1
97	62116	?	Gear Quadrant	35	42	17	1
98	62117	?	Gear Quadrant	35	42	17	1
99	62118	?	Gear Quadrant	35	42	17	1
100	62119	?	Gear Quadrant	35	42	17	1
101	62120	?	Gear Quadrant	35	42	17	1
102	62121	?	Gear Quadrant	35	42	17	1
103	62122	?	Gear Quadrant	35	42	17	1
104	62123	?	Gear Quadrant	35	42	17	1
105	62124	?	Gear Quadrant	35	42	17	1
106	62125	?	Gear Quadrant	35	42	17	1
107	62126	?	Gear Quadrant	35	42	17	1
108	62127	?	Gear Quadrant	35	42	17	1
109	62128	?	Gear Quadrant	35	42	17	1
110	62129	?	Gear Quadrant	35	42	17	1
111	62130	?	Gear Quadrant	35	42	17	1
112	62131	?	Gear Quadrant	35	42	17	1
113	62132	?	Gear Quadrant	35	42	17	1
114	62133	?	Gear Quadrant	35	42	17	1
115	62134	?	Gear Quadrant	35	42	17	1
116	62135	?	Gear Quadrant	35	42	17	1
117	62136	?	Gear Quadrant	35	42	17	1
118	62137	?	Gear Quadrant	35	42	17	1
119	62138	?	Gear Quadrant	35	42	17	1
120	62139	?	Gear Quadrant	35	42	17	1
121	62140	?	Gear Quadrant	35	42	17	1
122	62141	?	Gear Quadrant	35	42	17	1
123	62142	?	Gear Quadrant	35	42	17	1
124	62143	?	Gear Quadrant	35	42	17	1
125	62144	?	Gear Quadrant	35	42	17	1
126	62145	?	Gear Quadrant	35	42	17	1
127	62146	?	Gear Quadrant	35	42	17	1
128	62147	?	Gear Quadrant	35	42	17	1
129	62148	?	Gear Quadrant	35	42	17	1
130	62149	?	Gear Quadrant	35	42	17	1
131	62150	?	Gear Quadrant	35	42	17	1
132	62151	?	Gear Quadrant	35	42	17	1
133	62152	?	Gear Quadrant	35	42	17	1
134	62153	?	Gear Quadrant	35	42	17	1
135	62154	?	Gear Quadrant	35	42	17	1
136	62155	?	Gear Quadrant	35	42	17	1
137	62156	?	Gear Quadrant	35	42	17	1
138	62157	?	Gear Quadrant	35	42	17	1
139	62158	?	Gear Quadrant	35	42	17	1
140	62159	?	Gear Quadrant	35	42	17	1
141	62160	?	Gear Quadrant	35	42	17	1
142	62161	?	Gear Quadrant	35	42	17	1
143	62162	?	Gear Quadrant	35	42	17	1
144	62163	?	Gear Quadrant	35	42	17	1
145	62164	?	Gear Quadrant	35	42	17	1
146	62165	?	Gear Quadrant	35	42	17	1
147	62166	?	Gear Quadrant	35	42	17	1
148	62167	?	Gear Quadrant	35	42	17	1
149	62168	?	Gear Quadrant	35	42	17	1
150	62169	?	Gear Quadrant	35	42	17	1
151	62170	?	Gear Quadrant	35	42	17	1
152	62171	?	Gear Quadrant	35	42	17	1
153	62172	?	Gear Quadrant	35	42	17	1
154	62173	?	Gear Quadrant	35	42	17	1
155	62174	?	Gear Quadrant	35	42	17	1
156	62175	?	Gear Quadrant	35	42	17	1
157	62176	?	Gear Quadrant	35	42	17	1
158	62177	?	Gear Quadrant	35	42	17	1
159	62178	?	Gear Quadrant	35	42	17	1
160	62179	?	Gear Quadrant	35	42	17	1
161	62180	?	Gear Quadrant	35	42	17	1
162	62181	?	Gear Quadrant	35	42	17	1
163	62182	?	Gear Quadrant	35	42	17	1
164	62183	?	Gear Quadrant	35	42	17	1
165	62184	?	Gear Quadrant	35	42	17	1
166	62185	?	Gear Quadrant	35	42	17	1
167	62186	?	Gear Quadrant	35	42	17	1
168	62187	?	Gear Quadrant	35	42	17	1
169	62188	?	Gear Quadrant	35	42	17	1
170	62189	?	Gear Quadrant	35	42	17	1
171	62190	?	Gear Quadrant	35	42	17	1
172	62191	?	Gear Quadrant	35	42	17	1
173	62192	?	Gear Quadrant	35	42	17	1
174	62193	?	Gear Quadrant	35	42	17	1
175	62194	?	Gear Quadrant	35	42		

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TABLE XII (CONTINUED)

AKME, L462 16" ENGINE LATHE

Similar to U.S. heavy duty Lodge and Shipley 16" lathes

ITEM NUMBER	STUD ID.	STUD NO.	BEARING APPLICATION IN EQUIPMENT	BORE	DIMENSIONS	QUANTITY
				BORE O.D.	WIDTH	
Bearing, tapered	7303	30003	?	40	80 20	1
Bearing, tapered	7307	30007	?	35	80 23	1
Bearing, tapered				1		1

Note: See also entry 6 partial list because the complete machine is incomplete. Probably only 5 or 6 bearings are needed.

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TABLE XLI.

Model 1336 H Turret Lathe

1/2" bar capacity (Pittlar type) no U. S. equivalent; same capacity as Warner-Beasey 1/3 rpm type turret lathe.

This is only a partial list because the sample machine is incomplete—possibly about 6 bearings are missing.

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TABLE XIV
EXCAVATOR TS 2

A power excavator that can be fitted with a shovel
or a pair of long jaws for clearing dense underwater
growth in swamps previous to peat removal

TYPE OF EXCAVATOR	OWNER NO.	SIP NO.	BREAKING APPLICATIONS IN EQUIPMENT	DIMENSIONS	DEPTH	WIDTH	DEPTH	QUANTITY	REMARKS
Bull	307	6307		Not given	35	60	21	3	
Bull	308	6308			40	90	23	3	
Bull	412	6412			60	150	35	2	
Bull	210	6210			50	90	20	8	
Bull	609	6409			45	120	29	4	
Bull	610	6410			50	130	31	2	
Bull	823	8423			65	100	27	2	
Bull	821	8421			55	90	25	2	
Bull	216	6216			80	140	26	4	
Buller, square	7518	32218			90	160	43	8	
Buller	7512	32212			60	130	34	4	

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74036

(SM) Army Concur

The basic information about description, Soviet number, and dimensions came in nearly all cases from one source for each item of equipment, and is thus indicated below. Supplementary information and confirmation was taken from "List of Wholesale Prices for Ball and Roller Bearings" published by the Main Administration of the Bearing Industry of the Ministry of Automobile and Tractor Industry. A statement of the front of the catalogue notes it effective 1 January 1950.

Table I (T-34 Tank) - "Engineering Analysis of the Russian T-34/85 Tank",

Chrysler Corporation, Sept 1951. Confid.

OK

Table II (MIG Engine) - Extract of technical report from Cornell Aeronautical Laboratories concerning the breakdown examination of a captured MIG 15. 1952. Secret.

Table III (S 60 Tractor) - "Price List, Wholesale Prices, for Bearings for Tractors and Automobiles", Ministry for the Automobile and Tractor Industry, Moscow, 1950. Unsealed.

Table IV (D-54 Tractor) - Ibid.

Table V (S 60 and S 65 Tractor) - Ibid.

Table VI (SUZI - BATT Tractor) - Ibid.

Table VII (KUB 5 Truck) - Ibid.

Table VIII (KUB 150 Truck) - Ibid.

Table IX (KUB 151 Truck) - Ibid.

Table X (GAK 52 Truck) - Ibid.

Table XI (GAK 63 Gun) - Engineering Analysis of Soviet 152mm Gun (GAK Gun) and GAK Analysis Report on the machine by U.S. Ordnance Test Directorate, Report No. "Design and Construction of Soviet Gunning Tools" by H.A. Anderson, August 1950, and the "Ordnance Ballistic Data Book", Bureau of Ordnance, Defense Supply, Washington.

Table XII (100 Gun) - Ibid.

Table XIII (Bomber Aircraft) - Ibid.

Table XIV (Cannons) - Ibid.